

**Applicant:** Koiwai et al.  
**Application No.:** 10/001,397

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Amended) A lens barrel comprising:

a moveable flare diaphragm disposed on an optical path of lenses or in a vicinity thereof and having a portion thereof making sliding engagement with a lens holding frame such that said flare diaphragm respectively[,] advances in a direction toward and retreats in an opposite direction away from the optical path for cutting deleterious light responsive to said lenses and at least one said lens holding frame moving in a projecting direction and a collapsing direction along an optical axis.

2. (Original) A lens barrel according to claim 1, wherein said flare diaphragm is adapted to advance and retreat responsive to a respective change in focal distance of said lens.

3. (Original) A lens barrel according to claim 1, wherein a moveable lens frame is used as a driving source for moving said flare diaphragm.

4. (Amended) A lens barrel comprising:

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a moveable flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm respectively advances in a direction toward and retreats in an opposite direction away from the optical path for cutting deleterious light responsive to said lenses moving in a projecting direction and a collapsing direction along an optical axis,

wherein said flare diaphragm is adapted to advance and retreat responsive to a respective change in focal distance of said lens,

wherein a moveable lens frame is used as a driving source for moving said flare diaphragm, and

[A lens barrel according to claim 3] wherein said movable lens frame has a cam surface and said flare diaphragm has a cam follower moved by said cam surface.

5. (Amended) A lens barrel comprising:

a movable flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm respectively advances in a direction toward and retreats in an opposite direction away from the optical path for cutting deleterious light responsive to said lenses moving in a projecting direction and a collapsing direction along an optical axis,

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[A lens barrel according to claim 1,] wherein said flare member includes a cam follower engaging a cam provided in said lens barrel to move said flare diaphragm.

6. (Original) A lens barrel according to claim 1, wherein at least one point along the flare diaphragm remains stationary and another portion thereof moves into and out of the optical path.

7. (Amended) A lens barrel comprising:  
a movable flare diaphragm disposed on a optical path of lenses or in a vicinity thereof such that said flare diaphragm respectively advances in a direction toward and retreats in an opposite direction away from the optical path for cutting deleterious light responsive to said lenses moving in a projecting direction and a collapsing direction along an optical axis. [The lens barrel according to claim 1,] wherein the flare diaphragm moves along an arcuate path.

8. (Original) The lens barrel according to claim 1, wherein the flare diaphragm swings about a fixed pivot point.

9. (Amended) A lens barrel comprising:

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a flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm advances into and retreats from the optical path for cutting deleterious light responsive to said lenses moving in a direction of an optical axis,

wherein a driving motor for driving said lenses for zooming or focusing is used as a driving source of said flare diaphragm, said flare diaphragm being driven by a rotatable member driven by said motor.

10. (Amended) [A lens barrel according to claim 9.] The lens barrel according to claim 1, wherein the flare diaphragm swings about a fixed pivot point, and

wherein said flare member is swingably mounted about a pivot axis and further including gear means coupled between said driving motor and said flare diaphragm for moving said flare diaphragm during operation of said diving motor.

11. (Amended) A lens barrel comprising:

a flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm advances into and retreats from the optical path for cutting deleterious light responsive to said lenses moving in a direction of an optical axis,

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wherein said flare diaphragm is formed by a flexible member which undergoes increasing flexing when advanced into the optical path and decreasing flexing when retreated from the optical path.

12. (Original) A lens barrel comprising:

a flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm advances into and retreats from the optical path for cutting deleterious light responsive to said lenses moving in a direction of an optical axis,

wherein said flare diaphragm is disposed in a space of D-shaped cut portion in the lenses which does not contribute to an effective light beam.

13. (Amended) A lens barrel comprising:

a flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm has a portion thereof making sliding engagement with a portion of said lens barrel movable with said lenses such that said flare diaphragm respectively advances into and retreats from the optical path for cutting deleterious light responsive to said lenses moving in a direction of an optical axis,

wherein said flare diaphragm is disposed only on a lower side of the optical axis in a rear portion of said lens barrel.

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14. (Amended) A lens barrel comprising:

a flare diaphragm disposed on an optical path of lenses or in a vicinity thereof such that said flare diaphragm advances into and retreats from the optical path for cutting deleterious light responsive to said lenses moving in a direction of an optical axis,

wherein said flare diaphragm has a center of rotation orthogonal to the optical axis, and has a portion thereof which slidably engages a member movable with said lenses, so that said flare diaphragm advances into and retreats from the optical path by a rotating operation corresponding to a position of the lenses.

15. (Amended) A lens barrel comprising:

lenses forming a photographic optical system;

a lens holding frame for holding said lenses, said lens holding frame being moved in a direction of an optical axis to perform a focal distance changing operation or a focusing operation for the photographic optical system; and

a moveable flare diaphragm having a portion thereof making sliding engagement with the lens holding frame such that the flare diaphragm is respectively[,] advanced in a direction toward and retreated in an opposite direction away from a photographic optical path for cutting deleterious light in response to movements of said lens holding frame in opposite directions along the optical axis.

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16. (Original) A lens barrel according to claim 15, wherein said flare diaphragm is disposed only on a lower side of the optical axis in a rear portion of said lens barrel.

17. (Original) A lens barrel according to claim 15, wherein at least one point along the flare diaphragm remains stationary and another portion thereof moves into and out of the optical path.

18. (Original) A lens barrel according to claim 15, wherein said flare diaphragm is advanced and retreated by movements of said lens holding frame in the direction of the optical axis caused by a change in focal distance of said lenses.

19. (Amended) A lens barrel comprising:  
lenses forming a photographic optical system;  
a lens holding frame for holding said lenses, said lens holding frame being moved in a direction of an optical axis to perform a distance changing operation or a focusing operation for photographic optical system;

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a flare diaphragm advanced into and retreated from a photographic optical path for cutting deleterious light in response to movements of said lens holding frame in the direction of the optical axis,

wherein a driving motor for driving said lenses for zooming or focusing is used as a driving source of said flare diaphragm, said flare diaphragm being driven by a rotatable member driven by said motor.

20. (Amended) A lens barrel comprising:

lenses forming a photographic optical system;

a lens holding frame for holding said lenses, said lens holding frame being moved in a direction of an optical axis to perform a focal distance changing operation or a focusing operation for the photographic optical system; and

a flare diaphragm advanced into and retreated from a photographic optical path for cutting deleterious light in response to movements of said lens holding frame in the direction of the optical axis,

wherein said flare diaphragm is formed by a flexible member which undergoes increasing flexing when advanced into the optical path and decreasing flexing when retreated from the optical path.

21. (Original) A lens barrel comprising:



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lenses forming a photographic optical system;

a lens holding frame for holding said lenses, said lens holding frame being moved in a direction of an optical axis to perform a focal distance changing operation or a focusing operation for the photographic optical system; and

a flare diaphragm advanced into and retreated from a photographic optical path for cutting deleterious light in response to movements of said lens holding frame in the direction of the optical axis,

wherein said flare diaphragm is disposed in a space of a D-shaped cut portion in the lenses which does not contribute to an effective light beam.

22. (Amended) A lens barrel comprising:

lenses forming a photographic optical system;

a lens holding frame for holding said lenses, said lens holding frame being moved in a direction of an optical axis to perform a focal distance changing operation or a focusing operation for the photographic optical system; and

a flare diaphragm advanced into and retreated from a photographic optical path for cutting deleterious light in response to movements of said lens holding frame in the direction of the optical axis,

wherein said flare diaphragm swings about a center of rotation orthogonal to the optical axis, and having a portion thereof making sliding engagement with a

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lens holding frame such that the flare diaphragm advances into and retreats from the optical path by rotating operations corresponding to a position of the lenses.

23. (Original) A lens barrel comprising:

a flare diaphragm disposed on an optical path of lenses or in the vicinity thereof such that said flare diaphragm advances into and retreats from the optical path for cutting deleterious light corresponding to said lenses moving in a direction of an optical axis,

wherein a moveable lens frame is used as a driving source for moving said flare diaphragm, and

wherein said flare diaphragm is formed by a flexible member, said movable lens frame having a cam surface for selectively engaging said flexible member responsive to a relative position of the movable lens frame along the optical axis.

24. (Amended) A lens barrel comprising:

a plurality of lenses forming a photographic optical system;

a lens holding frame holding at least one of said lenses; said lens holding frame being movable along an optical axis of said lenses; and

a flare diaphragm formed by a flexible member disposed on one of an optical path of said lenses and in a vicinity thereof such that said flare diaphragm contacts

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one of said lenses and said lens holding frame so as to be deformed when said lens holding frame is moved in a first direction along the optical axis;

said flare diaphragm returning to an undeflected state when said lens holding frame is moved in a second direction opposite said first direction, said flexible member remaining in the undeflected state when said lens frame moves in said second direction to a location whereby the flare diaphragm is free of engagement with both the lens frame and said one of said lenses.

25. (Amended) A lens barrel comprising:

a plurality of lenses forming a photographic optical system;

a lens holding frame holding at least one of said lenses, said lens holding frame being movable along an optical axis of said lenses; and

a flare diaphragm formed by a flexible member and provided as part of a frame other than said lens holding frame so that said flare diaphragm is disposed on one of an optical path of said lenses and in a vicinity thereof such that said flare diaphragm contacts one of said lenses and said lens holding frame so as to be deformed when said lens holding frame is moved in a first direction along the optical axis;

said flare diaphragm returning to an undeflected state when said lens holding frame is moved in a second direction opposite said first direction, said

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flexible member remaining in the undeflected state when said lens frame moves in said second direction to a location at which the flare diaphragm is free from engagement with both the lens frame and said one of said lenses.

26. (Amended) A lens barrel comprising:

lenses forming a photographic optical system;

a frame movable along an optical axis of said lenses; and

a flare diaphragm formed by a flexible member disposed on one of an optical path of said lenses and in a vicinity thereof such that said flare diaphragm contacts said frame to be deformed when said frame is moved in a first direction along the optical axis;

said flare diaphragm returning to an undeflected state when said lens holding frame is moved in a second direction opposite said first direction, said flexible member remaining in the undeflected state when said lens frame moves in said second direction to a position at which the flare diaphragm is free of any engagement with both the lens frame and said one of said lenses.

27. (New) A lens barrel as claimed in claim 24 wherein the flare diaphragm retreats from a photographic optical path when the lens frame is moved in said first direction and advances into the photographic optical path when the lens

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frame moves in said second direction, to prevent photographic light flux from entering into a camera body.

28. (New) A lens barrel as claimed in claim 25 wherein the flare diaphragm retreats from a photographic optical path when the lens frame is moved in said first direction and advances into the photographic optical path when the lens frame moves in said second direction, to prevent photographic light flux from entering into a camera body.

29. (New) A lens barrel as claimed in claim 26 wherein the flare diaphragm retreats from a photographic optical path when the lens frame is moved in said first direction and advances into the photographic optical path when the lens frame moves in said second direction, to prevent photographic light flux from entering into a camera body.

30. (New) A lens barrel as claimed in claim 24 wherein said flexible member is located to one side of an optical axis of said photographic optical system.